

ELECTRONIC BILL PRESENTMENT AND PAYMENT SYSTEMS AND PROCESSES

The present invention relates generally to electronic commerce, and more particularly to methods and systems for providing end-to-end electronic bill presentment and payment systems, processes and functionality.

Background of the Invention

Some people think dealing with bills is not fun. They consider it a burden which they would love to lift from their shoulders or at least reduce. Billers do not like having to create and send them and bill payers do not like paying them. But billing consumers for goods and services has always been a necessary exercise and transaction cost of engaging in credit-based commerce. Traditional paper-based billing processes seek three major objectives: to (1) deliver bills to the customer base reliably (2) at minimum cost and (3) in a manner that causes quick payment. Although as reliable as the postal system, conventional paper-based billing is expensive and gives the customer a significant float thus depriving the biller of the time value of money. For example, a company with 100,000 accounts which are billed on a monthly basis may spend over two million dollars a year in paper-based billing expenses; a single paper based billing transaction can cost between one and two dollars. Much of this expense stems from the cost of materials, printing, postage, and manual processing of the paper bills, inserts and envelopes.

The time delay associated with paper based billing can be particularly vexsome to small billers and non-recurrent billers who tend to rely more heavily on cash flow.

For larger billers such as a utility whose average billed amount is \$75 with a customer population of 100,000, the float assuming a 6 day round trip through the postal system and interest at the rate of 8% is more than \$115,000 per year.

Paper-based billing can also deprive billers of an opportunity to build brand. Although many paper billers include various types of marketing inserts with their bills in an attempt to use the billing activity as an additional opportunity to build brand and customer relationships, those materials cannot be targeted as effectively as in an interactive session. For instance, billers do not have significant realistic control over the circumstances under which, or whether, a consumer views particular inserts. In fact, studies have shown that many consumers disregard such inserts altogether.

Electronic bill presentment and payment (EBPP) arose with the advent of the Internet because it addresses three needs of billers. First, it reduces billing cost. Second, it allows more effective marketing through the billing process than paper-based billing. Third, it allows better customer relationship management than with paper-based billing. Instead of preparing and mailing paper bills, EBPP enables businesses to publish, distribute and/or present bills electronically on web pages. Instead of writing checks and applying stamps, consumers have the opportunity to pay bills such as by an electronic credit card charge or direct bank draft. The biller benefits by avoiding the cost of generating and mailing paper bills, and by avoiding the payment float occasioned by two-way mail delay and other delays in paper-based remittance. The customer benefits with the added convenience of conducting transactions online, and the opportunity to pay many or all bills on one site or in one virtual space. The biller

has the opportunity to present customized content on the screenface with the bill, without having to foot the extra printing and insertion cost associated with paper inserts. The biller can stay in closer communication with the customer via electronic mail and other electronic techniques, and can communicate interactively.

Nothing is free, however, and there are costs associated with moving from paper-based billing to EBPP. EBPP in any event presents significant hardware, software, security and storage issues, as well as significant human resources issues. Outsourcing these issues is a viable alternative for an organization that does not desire to custom build a proprietary EBPP function or whose size or economic base does not cost justify such an in-house solution, but outsourcing always sacrifices control of the system, of where and how the bills are presented, and over the potential to build brand and customer relationships through the billing process. In short, across the population of various types of conventional EBPP architectures and systems, there is always a tradeoff between complexity and control over the process. In-house systems tend to be complex and expensive, but give maximum real time control over the process. Outsourcing solutions can be less expensive to pursue, but conventionally only by giving up significant real time control.

Real time control over the billing process is of massive importance, because it allows building of brand and customer relationships. For example, special discounts can be applied online in real time if the customer pays in a certain period, and the account immediately adjusted and balanced. Specially targeted inserts can be presented on screen with the bill according to a particular group in which the customer

fits, where he or she is geographically located, or according to any other desired demographic data or category. Time sensitive content can be displayed with the bill, such as promotions relating to events which occur on certain days, limited time only sales or marketing efforts, or any other time sensitive information which obviously needs to be added, deleted or supplanted when the relevant time starts or expires.

In one common approach to EBPP, for example, which is often referred to as the custom development method, billers create a proprietary electronic billing system and link it to a third-party for payment processing. Because custom development is mostly an internal EBPP solution, it gives billers the advantage of tight control over the billing system. However, this type of solution is expensive. Not only is it a technology risk because billers lose the flexibility to adapt to other EBPP standards, but it also requires a substantial commitment of manpower, infrastructure and consultant resources for planning, development and implementation. Among other things, merely obtaining a license to run the relational database application for managing billing information is often viewed as prohibitive, especially for smaller billers. Furthermore, such systems innately discourage consumer use or popularity, since the consumer is required to log onto and initiate a session on a separate site, with different passwords and different logon procedures, for each different bill the consumer wishes to pay.

One example of the custom development or "in-house" approach to EBPP is the direct rendering approach. In the direct rendering approach, billers merely present electronic representations of the paper bills to consumers. For example, the paper bills may be electronically "redrawn" via electronic scanning and then digitally presented to

emphasis on the processing aspect. It tends to be fast, even if not dynamic. Because this EBPP paradigm merely shoots a snapshot at processing time, billers cannot make modifications to the electronic bill at the time of presentment, for example. It cannot create and use various report and view formats via which to view and operate on the billing data stored in the database. It cannot create and set permissions for access to and processing of such data. In addition to loss of control of this sort and other sorts, the front-end rendering approach is expensive due to substantial implementation costs and because it requires the use of multiple application program interfaces to handle the electronic billing data. A central reason for loss of control of data once the biller stream has been parsed is that the biller-side data has not been decoupled sufficiently from the presentment-side data.

A third conventional EBPP approach, which is referred to as the consolidator approach trades control of the billing interface and branding opportunity for a reduction in cost, risk, and internal staffing by outsourcing the EBPP to a third party consolidator. Here, the electronic payment processor takes on a lock box function of holding and moving cash during billing and payment. The payment processor performs an aggregation function by presenting multiple billers' statements at a single, consolidating web site. Not only does interposition of the consolidator and its interface between billers and consumers interrupt any existing relationship and potential to build brand, but it also precludes exploitation of new biller opportunities to interact with consumers.

In addition to the problems already mentioned, existing EBPP systems and processes have various other disadvantages. For example, they remain an expensive

option for most billers who lack sufficient economies of scale necessary to overcome the high fixed cost of implementation. These EBPP methods, which primarily focus on reducing biller costs, also often fail to address the issue of consumer convenience adequately, much less to provide effective incentives for consumer adoption.

Furthermore, conventional EBPP approaches often require redundant resources supported by multiple entities and consequently waste processing and transport resources. For example, using existing EBPP methods, if a consumer desires to pay AT&T bills electronically at a website such as Yahoo.com., the following occurs. First, the consumer requests that Yahoo.com receive the AT&T bill and send it to the consumer. Then, assuming AT&T partners with an electronic payment facilitator such as CheckFree, Yahoo.com makes a request to CheckFree. Finally, CheckFree initiates the request to AT&T. Because each of these entities is independent, each requires its own resident database and other support functionality. Such conventional EBPP approaches leave open significant opportunity to increase efficiency and effectiveness by reducing throughput, redundancy and concurrency tasks and issues.

Summary of the Invention

The present invention provides end-to-end electronic bill presentment and payment systems and processes which seek to be the Switzerland of EBPP sources. Such systems and processes speak in a lingua franca to enable any and all billers to interface with any and all banks and other financial institutions, payment facilitators, consumers, web portals and / or bill presenters and other entities in order to accomplish bill presentment and payment.

Core to systems and processes according to the present invention are databases which store billing data and their metadata or attributes according to a lingua franca that is easily, efficiently and accurately understood and traded on anywhere on the Internet or any other data network. Systems and processes according to the present invention seek to transform billing data from any biller, customer or financial institution into a lingua franca or a form that allows quick conversion into the lingua franca. In some ways, systems and processes according to the present invention treat data similar to how packages are treated in the FEDEX system. There, all packages go via air to Memphis where they are collected and sorted in the middle of the night according to highly automated processes, and then launched on the correct aircraft for direction to their destination. Although intuition suggests that FEDEX should send an Atlanta shipper's package directed to an Atlanta address directly to that address rather than to Memphis and back overnight, studies showed that efficiency was served by instead always applying a highly automated and efficient common collection, storage and distribution process in Memphis, even if it did require package travel over greater geographic distance. Similarly, systems and processes according to the present invention transform data and its attributes into a form that can be stored in a common document storage model before operating on it. That model allows efficient and accurate access, processing, and distribution via a lingua franca such as XML, for access and use by the billers, financial institutions, other EBPP processors, and of course the customers. In some ways, the common document model / storage models according to the present invention can be compared to Memphis in the FEDEX system

or the hub and spoke architecture that airlines use for efficient "processing" of passengers to their destinations.

Systems and processes according to the present invention thus use common document models and storage models which are generic in some ways and not confined to a particular industry, biller, or type of customer. The models accommodate a range of billers, bill types, record types, presentation types, presentation media types, biller output data streams, and data interchange protocols and processes.

According to a preferred embodiment of the present invention, a data stream from a biller, which may be a print stream, data interchange stream or any other sequence of data, is the subject of a rules application process. The rules application process uses a special rules development language that allows a quasi-skilled specialist in minimum time to generate a translator that parses the biller's data stream into a common document model tree. In the tree, which may be based on XML or successors to it, the data and their attributes are mapped into nodes which fit the common document model for storage in the database. Because of the generic and universal nature in which the billing data and its attributes are stored, the database can be coupled to presentment processors, such as via XML, that may include style sheets and other applications that transform the stored data into whatever desired form and format to support bill presentment wherever and whenever desired.

Such systems can provide billers a complete end-to-end solution for electronic bill presentment and payment. The biller's data may be transformed efficiently and effectively using the rules definition language into data and its attributes that can be

stored in a manner that allow the biller new opportunities not available in conventional EBPP systems. These stem from the fact that the biller can access the billing data and attributes stored in databases according to the present invention in order (1) to operate on it; (2) to query it for information; (3) to control how it will be presented to customers and with what other information such as brand building or customer relationship building information; and (4) to access, use and perhaps change it while communicating with customers such as via a help desk or customer service lines. Thus, according to the present invention, the biller may have "offloaded" the data to an outsource for EBPP, but without losing the opportunity to access and operate on the billing data, and to control in real time the data that will be presented to customers in the form of bills as well as the look and feel according to which the bills are presented, to obtain reports about bill status, to help effectuate the payment process, to categorize or group bills or customers for various purposes such as adding demographically or other based content, and for other purposes. Because of the universality of its structure, the billers can control from a billing console functionality how the bills and billing data will be presented on any desired platform using any desired applications, formats and protocols, via presentment engines that include style sheets, translators, processors or other techniques which allow efficient and ready transformation into a state ready for use by such platforms, applications, formats and protocols. For example, for a single biller, the database can simultaneously present bills for different customers from a single batch of bills in various spoken languages, on HTML based browsers, on OFX supported applications, or in any other way desired by any biller or customer.

EBPP systems and processes according to the present invention for the first time promote EBPP aggregation. From the biller's point of view, these systems and processes allow many types of billers to have their bills processed, presented and paid using a single source using the common document model / storage model. Each of such billers is incentivized to use this source, because with it, they can outsource their billing problems but still maintain control over their billing data and how it is presented. Thus, value propositions for the biller from systems and processes according to the present invention include:

- a. end to end electronic billing services which can be outsourced relatively inexpensively without loss of control over bill processing, presentment or payment;
- b. establish a base for entering the electronic commerce field;
- c. leverage brand building, customer relationship building and marketing opportunities offered by these EBPP systems, by unlimited ability to control the way the bill looks, what is contained in it and why, and how and according to what terms it can be paid;
- d. use existing payment relationships with minimum interruption or inconvenience to financial institutions or customers;
- e. deliver bills wherever the customer wants;
- f. establish an online presence;
- g. unpack the biller's own information, support HTML presentation so that for the first time, biller's own employees may access it and use it to service customers;
- h. promote quick payment;

- i. avoid the costs and human resources requirements of doing these things in house;
- j. cost reduction over paper based billing;
- k. pay as you use; avoid capital costs of in house billing system;
- l. leverage marketing and EBPP expertise and talent of EBPP processor who operates across a range of industries and customers and is thus current with latest trends;

From the customer's point of view, because of the common document model / storage model, such systems and processes can present and enable payment of bills ubiquitously -- customers can have their bills presented and paid on web portals, on their home financial application, via electronic mail, or wherever else they desire. Because billers are incentivized to use the systems and processes, customers can pay all or most all of their bills in one place, but in a manner where each bill is presented to the customer in a way that is specially tailored to the customer with graphics, advertising, and other information that has been demographically proven to connect with that particular customer. Value propositions for the customer from EBPP systems according to the present invention include:

- a. bills delivered to place, site, space, application, of choice;
- b. pay all or most bills in one place;
- c. convenience over collecting and paying paper bills;
- d. leverage convenience for institutional customers; for example, a university with thousands of electric meters can now receive one bill with the meters

netted up, to effectuate a single payment bill thus avoiding the significant costs of preparing and paying thousands of bills;

- e. reminders if desired;
- f. ability to receive relevant and demographically tailored and targeted information of value from the biller;
- g. cost and convenience over buying stamps and depositing paid bills in the mail.

Financial institutions connected to such systems find that they can leverage off the time value of money because quick payment means more accrued debt on which interest accrues. In short, every entity in the connected environment has incentive to use systems and processes according to the present invention, chiefly because they can be connected and transact in a way where each retains maximum control, gets maximum useful information, and transacts with minimum inefficiency and overhead.

Brief Description of the Drawings

Figure 1 is a diagram illustrating external connectivity of a preferred embodiment of an electronic bill presentment and payment platform according to the present invention.

Figure 2 is a diagram illustrating the architecture of the platform of Figure 1.

Figure 3 is a general level diagram showing components of and processes carried out by preferred embodiments of systems and processes according to the present invention.

Figure 4 is a diagram showing components of and biller data input processes carried out by preferred embodiments of systems and processes according to the present invention.

Figure 5 is a diagram showing components of and database load processes carried out by preferred embodiments of systems and processes according to the present invention.

Figure 6 is a diagram showing components of and bill presentment processes carried out by preferred embodiments of systems and processes according to the present invention.

Figure 7 is a sign in screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 8 is a user selection screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 9 is a new user creation screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 10A is a general parameters customization screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 10B is one portion of an enrollment parameters customization screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 10C is another portion of an enrollment parameters customization screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 10D is a further portion of an enrollment parameters customization screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 10E is a parsing and loading parameters customization screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 10F is a bill presentment parameters customization screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 10G is a portion of a payment parameters customization screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 10H is another portion of a payment parameters customization screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 10I is a further portion of a payment parameters customization screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 10J is a reporting parameters customization screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 11 is a quality assurance screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 12 is another quality assurance screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 13 is a bill publishing screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 14A is a request consolidation screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 14B is another quality assurance screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 15 is an inbound document control screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 16 is an inbound document control screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 17 is an outbound document control screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 18 is an inbound document control screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 19 is a mass email screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 20 is a compose mass email screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 21 is a news and messages screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 22 is a virtual group maintenance screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 23 is a virtual group edit screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 24 is a customer bills screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 25 is a customer accounts screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 26 is a customer profile screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 27 is a customer personal information screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 28 is a customer agreement screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 29 is a customer payment instruments screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 30 is a customer scheduled payment screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 31 is a customer service email screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 32 is a customer service notes screen shot of a biller interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 33 is a diagram showing various functionalities which may be included in a preferred embodiment of systems and processes according to the present invention.

Figure 34 is a diagram showing external connectivity of an alternative embodiment of systems and processes according to the present invention.

Figure 35 is an agent sign in screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 36 is a policy number search screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 37 is a customer name search screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 38 is a policy information screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 39 is a payment history display screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 40A is a customer policy display screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 40B is another customer policy display screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 41 is a policy payment display screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 42 is a policy payment details screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 43 is another policy payment details screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 44 is an agent customer service note screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 45 is a customer name search screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 46 is a policy information screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 47 is a multiple payment search screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 48 is a multiple payment search results screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 49 is a customer policy payment screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 50 is another customer policy payment screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 51 is an operation successful notification screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 52 is a policy list screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 53A is a portion of a customer policy display screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 53B is another portion of a customer policy display screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 54 is a new policy payment screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 55 is another new policy payment screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 56 is a new policy payment details screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 57 is another new policy payment details screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 58 is a customer notes screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 59 is a place note screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 60 is a cash report search screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 61 is cash report screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 62 is an agency payment screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 63 is an agency payment details screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 64 is another agency payment details screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 65 is an additional reports screen shot of an agent interface generated by a preferred embodiment of systems and processes of the present invention.

Figure 66 is a diagram showing processes for virtual groups according to a preferred embodiment of the present invention.

Detailed Description

Figure 1 shows connectivity of a preferred embodiment of a platform 10 of electronic bill presentment and payment processes and systems according to the present invention to other entities. Platform 10 can interface with, among other external entities, billers 12, banks and other financial institutions 14, payment facilitators or aggregators 16, consumers 18, and web portals, applications and / or bill presenters 20. Platform 10 can provide billers 12 a complete end-to-end solution for electronic bill presentment and payment that also accommodates the interests and convenience of consumers 18. Billers 12 can be any organization or institution that engages in paper based billing or conventional EBPP, or any other organization that has need or desire to engage in the sort of aggregated electronic commerce offered by systems and processes according to the present invention. Oil companies, insurance companies, utilities, telecommunications companies, communication service providers, retail institutions, credit organizations and others similarly situated fit within the broad and limitless profile of organizations who can leverage from systems and processes according to the present invention.

Financial institutions 14 which may connect, interact and/or transact with systems and processes according to the present invention include banks, credit organizations, brokerages, insurance companies, and any other organization which can have a need or desire to interact with systems and processes according to the present

invention to help effectuate electronic bill presentment and/or payment, or to enhance or build their own online presence for marketing and any other desired purpose.

Payment facilitators 16 can include other EBPP facilitators or organizations, credit card companies, credit unions, banks, or any other organization which can have a need or desire to interact with systems and processes according to the present invention to help effectuate electronic bill presentment and/or payment, or to enhance or build their own online presence for marketing and any other desired purpose.

Consumers 18 can be individuals, businesses, educational institutions, or any other entity that pays bills.

Presenters 20 can be web portals, financial applications on a consumer's 18 system, web sites specifically supported for the purpose of EBPP, the site of biller 12, or any other desired interface where a bill can be presented.

Platform 10 may take the form of a network of desired platforms, computers, or other functionality, located in one or more geographical locations, running any desired operating systems and applications. In the preferred embodiment, platform 10 is implemented on a Solaris operating system using an Oracle database and CORBA firmware and is configured in a scaleable and fault tolerant environment. Platform 10 may be connected to billers 12, financial institutions 14, payment facilitators 16, presenters 20 and any other desired entity via public or private packet-switched or other data networks including the Internet, circuit switched networks such as the public switched telephone network, wireless networks, or any other desired communications infrastructure 21.

types of biller data 23 is done in the same sort of conventional way that print streams or other financial or EDI data streams are processed or converted for various purposes. It may be that some biller data 23 does not need to be preprocessed, in which case there may be no need for an input processing engine for that data 23.

Rules based parsing engine 24 allows a wide variety of biller data 23 types and formats to be operated on or parsed by rules in order to fit a common document or data model which can store and process both data and its attributes. In other words, it is important for the common data or document model to know not only an account number being stored, but also that it is an account number and not a bill number or date. The parsing engine 24 helps progress data 23 toward a form or format according to which both the data and its attributes can be known, stored and processed. It does not matter if rules engine 24 outputs a tight set of data and tags or other corresponding attributes, or if that is done later; the parsing engine 24's main task is to accept a wide variety of data 23 from various billers and put it into a form and format where it is at least easier to generate and correlate the attributes for various data in a form that can be used by the common document or data model.

The rules used in parsing engine 24 are in turn preferably written using a uniform rules definition language. That URDL 25 seeks to allow a technician to take a new form of biller data 23 and write rules to parse that data 23 without extenuating work or investment of time. For example, URDL 25 currently in use allows technicians to write a set of rules for new data presented by a new biller in several days, without the need for people who are more deeply immersed in the whys and wherefores of financial data

interchange. URDL 25 instead seeks to institutionalize that financial data interchange knowledge by writing a language using certain syllogisms, algorithms, inferences and conclusions to be formed upon encountering various data types, certain realities about what the common document model / data model needs to have in the form of data and attributes, and allowing a technician merely to apply what is written in the language in a more mechanistic fashion to cause proper parsing to happen. The language is written using conventional knowledge about various print streams and electronic data interchange formats, knowledge about the common document model / data model, and techniques often applied to simplify preparation of various forms of data and its attributes to fit desired situations, such as text to be presented attractively in HTML, or data to be transacted on usefully in the form of XML data. Parsing engines 24 based on URDL 25 are thus advantageous because they can allow parsing of billing streams without the need to develop new application program interfaces or other functionality that requires overemployment of skill or time. Parsing engine 24 may also be implemented using an Oracle Parallel Server running on a clustered Sun platform.

As an example of what parsing engine 24 does, it may be adapted to parse relevant biller data 23 from each data record in a billing data stream based on instruction sets created to: identify individual data records within the input billing streams; locate, extract, and validate the relevant billing data within each data record; and assign meaningful attributes to the relevant billing data. Parsing engine 24 may output the relevant billing data and corresponding meaningful attributes ultimately for

storage in database 26 (after further processing) and for further processing by presentation processor 28 and payment processor 30.

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Figure 3 shows a more detailed diagram of functionality that processes biller data 23 and stores it in database 26 according to a common document model / data model. The broad idea that Figure 3 seeks to convey is the notion of modularity in taking various types of biller data 23, preprocessing where necessary, and parsing according to rules in parsing engine 24 (which may but need not be done according to a URDL 25), in order to place that biller data 23 in the form of a common document model tree. Think of the common document model / data model according to the present invention as a list of every field of data, and its attribute (such as, for example, bill number and tag denoting bill number) that could occur in any bill desired to be presented by any biller. Not every biller's biller data 23 or bill will have all of that information; instead, it only as a subset of all data and attributes which could be accommodated by the common document model / data model. Accordingly, the biller's subset, which contains data and attributes which can be stored and processed according to the model, but not all of them, is known as the common document model / data model tree 38. Tree 38, or fairly close to it, is the output of parsing engine 24. Database loader 40 then takes tree 38 and loads it efficiently, effectively, and in conventional fashion in the same sort of way various subsets of data are loaded, for example into a global XML data model, onto database 26 which is structured according to common document model / storage models of the present invention.

Figure 4 shows processing of biller data 23 into form suitable for storage and use according to common document models / data models according to a preferred embodiment of the invention at a deeper level. Biller # 1 shown in Figure 4 presents a text stream of biller data 23 to be accommodated to platform 10 according to a preferred embodiment of the present invention. That text stream does not happen to require preprocessing, but instead is operated on directly by parsing engine 24A which applies an instruction set written in URDL 25. The instruction set was quickly and conveniently prepared by a technician to transform biller data 23 to conform to common document model tree #1 (38A), which is biller #1's biller data 23 transformed into a subset of data and its attributes which conform to the common document model / data model used in platform 10. Biller #2's data is in AFP, an IBM print stream format which requires some preprocessing and text extraction before it is suitable for parsing by parsing engine 24B. Again, parsing engine 24B applies an instruction set which was specially prepared with minimum effort and specialized knowledge. After parsing, biller #2's data is in the form of common document model tree #2 (38B). The biller data 23 for Biller #3 and Biller #4 also require preprocessing and text extraction, as shown in Figure 4, although it is not necessarily the case that any or all biller data 23 in AFP, metacode or otherwise will always or invariably require or not require preprocessing, text extraction or anything else to be operated on by parsing engine 24. If desired, for example, preprocessing, text extraction and other operations on biller data 23 could be accomplished in parsing engines 24. Modularity is preferred but not necessary according to the present invention.

Figure 5 continues from Figure 4 to show loading of data and its attributes from common document model trees 38 A - D into database 26 for biller #'s 1 - 4. Again, the preferred paradigm is modular, even if not necessary. For example, separate database loaders 40 can be used, each with its own special rule set 39 to accommodate a particular biller, but one or fewer loaders 40 could be used with separate rule sets 39, or one or fewer loaders 40 with one or fewer (even if bigger) rule sets 39. Loaders 40 take the data and its attributes in common document model trees 38 A - D and load it efficiently and effectively into database 26, thus loading subsets of common document model / data model into storage according to the model itself.

Figure 6 shows the presentment side of a preferred embodiment of electronic bill presentment and payment systems and processes of the present invention. The broader concept is that data and its attributes stored according to a common document model / data model in a database 26 according to the present invention is in a lingua franca that allows it to be transformed into electronic bills anywhere and everywhere, however desired by the biller 12 or the customer 18. In a preferred embodiment, output from the database 26 is in a form of XML or its equivalent or successor, which allows that data to be handled by any platform or application anywhere.

In Figure 6, two presentment processors 42 happen to be used. Any number could be used. Presentment processors 42 and 44 may be adapted to communicate with database 26 to retrieve, store, and modify common document model / data model information. Processor 42 is simply in the form of an XML style sheet which allows the data to be presented in whatever manner and to appear however and wherever desired

by a biller 12 or customer 18. For instance, a style sheet that works with a billing interface 48 supported on Yahoo will be different from the style sheet that supports a billing interface 48 supported on AOL. Where the bill is to be presented on a customer's Quicken application or to a financial institution where OFX is the format, the processor 44 transforms the XML data and attributes into OFX for presentment. Again, the data whether in HTML, OFX or any other format, can be distributed over infrastructure 21 which is any kind of public or private packet switched, circuit switched, or wireless infrastructure. Presentment processors may be prepared for any sort of data format, and it is important to note that systems and processors according to the present invention give the biller 12 control over processors 42 and 44 in order to control how their bills will look and feel wherever presented.

Platform 10 can enable billers 12 to exercise substantial management and administrative control over the electronic bill presentment and payment process. Platform 10 may provide billers 12 with an interface to database 26 and presentation processors 42 and 44, which may enable billers 12 to manage the administrative functions of electronic billing. The biller interface may enable billers 12, including employees and agents of billers 12, to perform a variety of administrative, customer service, management, and quality control functions. For instance, the biller interface may enable billers 12 to perform the following functions: view current and previous consumers bills, view payment history, view consumer emails, modify consumer enrollment, verify consumer identity, confirm consumer enrollment, perform consumer account maintenance, associate accounts to a consumer, make payment adjustments,

change employee access permissions to the biller interface, send news and messages to consumers, associate accounts to news, perform online consumer statistics, create payment settlement and periodic reports, select manual billing, view selected bills, perform quality feedback updates, print quality assurance reports, and release bills for publishing.

System embodiment 10 may also enable billers 12 to perform a variety of marketing functions via the biller interface. For example, the biller interface may enable billers 12 to create virtual groups. Virtual groups are market segments of the class of consumers 18 identified by billers 12 based on specific marketing rules. Billers 12 may use virtual groups to send emails to a portion of consumers 18 or to send marketing promotions to specific groups of consumers 18. Alternatively, the biller interface may enable billers 12 to use virtual groups to send any intelligent messaging to consumers 18.

Figures 7 - 32 show a series of web pages for a preferred embodiment of a biller interface supported by platform 10 according to a preferred embodiment of the present invention. These screen shots are exemplary only; currently they are implemented in HTML but they or any interface to platform 10 may be implemented in whatever desired matter according to technology current or conventional as of the date of this document or later technology. In any event, Figure 7 shows a web page that enables billers 12 to access platform 10 by entering a login name and password. After billers 12 are authenticated, platform 10 enables billers 12 to perform a number of functions for managing electronic bill presentment and payment, such as system administration,

reporting management, quality control, operations management, marketing, and customer service. For instance, Figures 8 - 10 show a series of web pages that enable billers 12 to administer and manage an electronic bill presentment and payment program. As shown in Figure 8, billers 12, including employees and agents, may select a user logon ID, which may be used for tracking administrative transactions, to gain access to the administration services and for other desired purposes. As shown in Figure 9, billers 12 may create new users that may access the administrative functions by creating a user profile, which contains information such as user logon, user password, employee name, employee telephone, and user group, such as quality assurance, customer service, or payment. Billers 12 may also control what administrative functions a user is permitted to perform on platform 10 by assigning the user to one of a number of predefined user groups each having different access parameters.

In the preferred embodiment, billers 12 may also use the biller interface to configure and modify a customized electronic bill presentment and payment solution by controlling a number of parameters, such as general parameters, enrollment parameters, parsing and loading parameters, bill presentment parameters, payment parameters, and reporting parameters. Figures 10A - 10J show a series of web pages that enable billers 12 to customize an EBPP solution. For example, as shown in Figure 10A, billers 12 configure general billing parameters, such as biller currency, such as US dollars, date format, whether multiple accounts will be permitted, whether consolidation will be permitted, and what type of consolidation will be permitted. Billers 12 may also

to release bills for publishing, as shown in Figure 13, and request bill consolidation, as shown in Figures 14A and 14B.

As shown in Figures 15 - 18, the preferred embodiment of the biller interface also enables billers 12 to manage an electronic bill presentment and payment operations center. As shown in Figures 15 and 16, billers 12 may control inbound documents received from consumers. The documents may be identified by document number, document type, status, and the date and time they were received. Billers 12 may also control outbound documents in a similar manner, as shown in Figures 17 and 18.

Figures 19 - 21 show a series of web pages that enable billers 12 to manage communications with consumers. As shown in Figure 20, billers 12 may send mass email messages to consumers reminding them of overdue payments, welcoming them to the EBPP program, or notifying them of new bills. Billers 12 may also compose and deliver to consumers news messages, such as marketing messages, banner messages, biller messages, and account messages.

The preferred embodiment of the biller interface also enables billers 12 to manage electronic bill presentment and payment marketing functions. For instance, as shown in Figure 22, billers 12 may perform virtual group maintenance, including creating new virtual groups, deleting existing virtual groups, and linking virtual groups. Figure 23 shows a web page that enables billers 12 to edit virtual groups by modifying existing conditions, fields, operations, and value parameters or by adding additional virtual group rules, such as those described above.

Figure 33 is a functional diagram that shows functionality and services supported by platform 10 according to a preferred embodiment of the present invention.

Surrounding the common document model / data model database functionality denoted as common services 100 in Figure 33 are the input processing engine 102, biller interaction management 104, payment gateway and interface management 106, financial institution payment gateway 108, payment functionality 110, targeted marketing functionality 112, presentment and distribution management 114, biller console 116, e-mail interaction management 118 and customer service and interaction management 120. Any or all of these can couple to database 26 (common services 110) data and data attributes to accomplish their purposes, using a lingua franca such as XML. Thus, billers do not lose control over their data once it is "launched" over to the platform 10; instead, biller may, among other things:

- a. control parsing rules in the input processing engine 102 to accommodate virtual groups according to virtual group functionality 112;
- b. interact with customers while seeing their billing records, using customer service and interaction management functionality 120;
- c. control how bills or reminders are sent to customers using e-mail, using functionality 118;
- d. control appearance and other characteristics of bill presentment in real time using presentment and distribution relationship management functionality 114;
- e. get reports and otherwise control the billing process (including for example, obtaining parsing reports, getting account receivable information or feeds,

stopping or starting print or enrollment, and other tasks) using biller interaction management 104;

- f. support its own website for presentment and payment of bills; and of course
- g. get paid via payment functionality 110.

From a customer's point of view, his or her bills can be supported anywhere, and customers are allowed additional communications with billers via e-mail interaction management 118 and interfaces 122.

Financial institutions (or any other entity, such as payment facilitators or other EBPP operations) are connected and can transact with their customers (who also happen to be biller's customers) more efficiently and effectively through various gateways and other interfaces. Indeed, financial institutions may if desired, fit within the category of billers, and be connected the in the same or similar manner, to accomplish the same sorts of enhanced contact with their customers to conduct electronic commerce, which may include presentment and payment of bills.

This diagram is merely logical; any of these functionalities can reside within other functionalities, and not all of them need to be included to carry out various purposes or results obtained by the present invention. Furthermore, the connections to the functionalities and between them are logical; billers may be connected via bus or to only one biller interaction functionality in order to carry out some or all of the control that systems and processes according to the present invention could allow.

Figure 34 shows merely one example of how EBPP systems and processes according to the present invention can connect to accommodate the interests of various parties in an electronic commerce context. Here a system 11 accommodates an insurance company and its agents. Sometimes agents 152 are the ones who get the premium checks, but more usually the insurance company gets the check or premium payment via direct deposit. But the agents get paid on commission from the company 150, and they want to have continual access to payment status on all their customers. EBPP system 11 allows this to occur by connecting the agent 152 and the company 150 to the EBPP system 11 via agent console or interface 156, the company 150 in the context of a biller 12. Payment can occur via check, or other forms of payment supported by EBPP system 11 through financial institutions 12, facilitators 16, credit organizations, or otherwise. The customer pays the bill which has been presented anywhere according to any desired format and the wishes of the insurance company. Immediately the insurance company 150 and the agent 152 know the bill has been paid. The agent can be paid his or her commission via system 11 if desired. The system 11 is particularly useful for policies that cover multiple insureds or lines of insurance; the company and the employer can access, according to preset permissions, the database 26 and drop employees who have left, for example, or add new employees to the coverage, and can add, drop or modify lines of insurance easily and quickly.

Figures 35 - 65 show a series of web pages for an agent console 156 according to a preferred embodiment of systems and processes of the present invention. In the

preferred embodiment, agent console 156 enables an agent of a company, such as an insurance agent or any other agent of a company, to access information related to customers, communicate with the company and customers, and conduct electronic business transactions with the company and customers. The information may be related to customer payment status, customer profiles, customer policies, or any other information associated with the relationship between the agent, the company, and customers. Figure 35 shows a web page that enables an agent to access EBPP system 11 by entering a login name and password. After the login name and password are authenticated against a database within system 11, the agent gains access to system 11.

Figures 36 - 59 show a series of web pages that enable an agent to perform customer account management services. For example, an agent may search for customer account information based on policy number, as shown in Figure 36, or based on customer name, as shown in Figure 37. Figure 38 shows a web page that displays customer account information for a particular policy number that has been queried by an agent. An agent may view the payment history for the customer, view the customer policy and payment schedule, make payments to the company for the customer, or send electronic messages to the customer. Figure 39 shows the linked web page that displays the payment history information for a customer, which contains a list of each transaction and related information, such as the date of payment, amount of payment, the transaction number, the authorization number, payment status, and the customer reference number. Figures 40A and 40B show the linked web page that enables an

agent to view a customer policy and make policy payments. For instance, Figure 41 shows the linked web page that enables an agent to view customer payment information and the electronic bill. Figures 42 and 43 show the linked web pages that enable an agent to select the type of payment parameters for the transaction. For example, an agent may select how much of the amount due to apply to the transaction and the type of payment, such as by electronic check, credit card, cash, money order, or any other suitable payment method. If the customer desires to pay via electronic check, the agent may also select the type of account, such as checking or savings. Figure 44 shows a web page that enables an agent to send a note to a consumer on a personalized mailbox, which resides on platform 10 of system 11.

As mentioned above, an agent may also search for customer account information based on customer name. Figure 45 shows a web page that enables an agent to select the appropriate customer from the search result list. Figure 46 shows a linked web page that displays the customer account information and enables an agent to view the payment history for the customer, view the customer policy and payment schedule, make payments to the company for the customer, and send electronic messages to the customer.

The preferred embodiment of agent console 156 also enables efficient payment of multiple policies associated with one individual, company or other insured entity. For example, as shown in Figure 47, an agent may search for an individual with multiple insurance policies. Figure 48 shows a web page that displays the search results and enables an agent to select multiple policies for the same individual that the agent

customer on a particular date to discuss a billing inquiry matter or any other customer service matter.

In addition to the customer management services described above, the preferred embodiment of agent console 156 also enables an agent to efficiently manage the agency relationship with the company. Figures 60 -65, show a series of web pages that enable an agent to process and view cash reports and customer payment reports, make payments to the company, and manage agent commissions for services performed for the company. Figure 60 shows a web page that enables an agent to select a time period and view agent transaction reports for that time period. Figure 61 shows a linked web page that displays information related to each agent transaction that occurred during the time period, such as policy number, payment instrument and the amount paid to the agent, and an account summary, which may include information such as account balance, agency payments made, and amount owed to the company. As shown in Figure 62, the agent may also make payment to the company. Figures 63 and 64 show a web page that enables an agent to select parameters for the payment to the company.

The preferred embodiment of agent console 156 also enables an agent to perform a number of reporting functions related to customer receipt information and payments made to the company. As shown in Figure 65, an agent may view, print and process receipt reports based on time period and payment type, such as cash, money orders, credit card, and checks. An agent may also view, print, and process reports of all transactions with the company.

